REGISTRATION FORM

STREAM INVESTIGATION, STABILIZATION & DESIGN WORKSHOP

WITH AN EMPHASIS ON INNOVATIVE APPROACHES TO STREAM STABILIZATION AND RESTORATION

This workshop is sponsored by the U.S. Army Corps of Engineers Water Operations Technical Support (WOTS) Program**,** and Kansas State University.

INSTRUCTORS*:* Dave Derrick, Research Hydraulic Engineer with the Corps of Engineer's Engineering Research & Development Center's Coastal & Hydraulics Laboratory (ERDC-CHL); Luke Cory, Regulatory Team Leader, U. S. Army Corps of Engineers Kanopolis, KS. Regulatory Field Office (Kansas City District); and Phil Balch, Stream Restoration Specialist with The Watershed Institute, Inc. Topeka, KS. The objectives of this workshop are to introduce the methodology and procedures for initiating, planning, analyzing, and ultimately designing long-term sustainable river and stream stabilization/restoration projects. Innovative, environmentally sensitive, and cost-effective approaches to channel restoration will be discussed. Several comprehensive case studies will also be presented. See enclosed draft agenda for details. A full day of field trips to local stream restoration projects will be conducted. Rain gear and appropriate field clothes are recommended for the field trip.

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MAY 21-23, 2007
MANHATTAN, KS

AGENDA

DAY 1 – MAY 21, 2007

8:00-8:20 Student and Teacher Introductions

8:20-9:15 The Philosophy of Restoration (Goal and Function Based Design), Project Planning, Monitoring, & How Streams Dissipate Energy

9:15-9:30 **BREAK**

9:30-11:30 The Channel Evolution Model (CEM) & Grade Control

11:30-12:30 **LUNCH**

12:30-2:00 Everything Outside the Active Channel - The Importance of the Riparian Buffer Zone, Watershed Management Problems, Rain Gardens, Sediment Issues, etc.

2:00-2:30 Regulatory Issues and Concerns – Luke Cory

2:30-4:30 Resistive and Continuous Bank Stabilization Methods (with break)

4:30-5:00 Recently Developed Innovative Techniques to Restore Function to Aquatic and Terrestrial Areas

DAY 2 – MAY 22, 2007

8:00-8:10 Announcements and Housekeeping

8:10-9:30 Redirective, Indirect, & Discontinuous Methods: Retards, Permeable Dikes, Jacks, Vane Dikes, Impermeable Structures Normal to Flow (Transverse Dikes, Contraction Dikes, Spur Dikes Both High & Low and Short & Long) L-Head & T-Head Dikes, Downstream Angled Structures, Upstream Angled Structures (Rock Vanes), the Bendway Weir, and Combinations of Redirective and Resistive Methods.

9:30-11:30 Bioengineering Philosophy and Methods for Streambank Protection Using Native Plants (with break)

11:30-12:30 **LUNCH**

12:30-1:30 TWO CASE STUDIES - Putting it All Together – Catt Creek @ Savage Road Highway Protection Project (resistive, redirective, & bioengineering on an incised channel with an engineered floodplain bench with integrated vernal pools and wetlands), and The McKinstry Creek Complete Channel and Floodplain Realignment Project

1:30-2:00 **THE ABRUPT PLANFORM MODIFIERS -** 5 methods to replicate small radius 90 degree bends, impinging flow situations, and bends that exit into the middle of the next bend (no crossing in between) {Regular, Wrong-Way and Twin Spin Boil-Up Pools, & Angle and Grand Slams}.

2:00-2:15 How to Choose a Bank Protection Method

2:15-2:30 Project Construction

2:30-3:45 How to Conduct a Field Investigation of a Streambank Erosion Problem
- a. Fundamentals of Fluvial Geomorphology
- b. How to Read a Stream
- c. Field Equipment
- d. Safety

3:45-4:00 Review (Dave's Top 10, 46 Ways to Stay out of Trouble)

4:00-5:00 Philosophy, Design, Construction, History and Performance of the Field Sites – Phil Balch

DAY 3 – MAY 23, 2007
FIELD INVESTIGATIONS-"Every stream is a classroom" DLD.

8:00-5:00 Field Trip: Site Analyses of several streams
- a.) Development of project performance goals (function based)
- b.) Analysis of existing, historical, and future flow and erosion processes and conditions
- c.) Flow visualization of proposed project (based on project goals)
- d.) Development of several stream stabilization conceptual designs
- e.) Analyze overall effects of chosen conceptual design on the stream system and riparian corridor

SITE #1 Bendway Weir project on the Blue River, Riley County Rd. 404, Manhattan, KS – Constructed Sept 1994, Eleven Bendway Weirs and some bank paving DS of BW #9 and from BW #10 to the bridge

SITES 2-5 4 sites on the Little Blue River, Marysville, KS area

4:50-5:00 Wrap-Up Workshop

END OF WORKSHOP

WORKSHOP OVERVIEW AND GOALS

* Provide a consistent philosophy of bank stabilization design, with an emphasis on understanding the stream as a complex inter-related system, and understanding both local and system-wide processes and problems.

* Provide an overview of the concepts of grade control and the Channel Evolution Model (CEM)

* Provide instruction in developing appropriate project goals

* Teach bank protection methods and how to choose the appropriate method or combination of techniques

* Clarify the importance of project constructability, monitoring, and maintenance

* Teach students how to read a stream (with instruction in field equipment needs and safety), and how to perform a comprehensive analysis of a streambank erosion problem.

* Reinforce the classroom lectures by performing a series of in-the-field site analyses, understanding the role of project goals in the development of conceptual flow analyses, and designing stabilization plans that relate to the project performance goals.

* Provide class handouts and notes, a comprehensive glossary, and avenues for help